CLAIMS:

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- Apparatus (10; 20; 70; 90; 100) comprising a level shifter (15; 75; 95; 1. 103) connectable to a signal input (1; 31; 71; 91) for receiving an input signal (s(t)) with a negative signal swing, said level shifter (15; 75; 95; 103) providing for a DC shift of said input signal (s(t)) to provide an output signal (r(t)) with positive signal swing, said level shifter (15; 75; 95; 103) comprising: an amplifier (17; 77) having a first input (11; 61), a second input (12; 62), and an output (13; 73), a first capacitor (C1), a second capacitor (C2; C2A, C2B to C2n), a reference voltage supply (16; 79), and a transistor (14; 74) serving as a switch, wherein said first capacitor (C1) is arranged between said signal input (1; 71; 91) and said first input (11; 61), said second capacitor (C2; C2A, C2B to C2n) is arranged in a feedback-loop (18) between the 10 output (13; 73) and said first input (11; 61), said reference voltage supply (16; 79) is connectable to said second input (12; 62), and wherein said transistor (14; 74) is arranged in a branch (19; 69) that bridges the second capacitor (C2; C2A, C2B to C2n), whereby a control signal (CNTRL) is applicable to a gate (14.1; 74.1) of said transistor (14; 74) in order to allow the level shifter (15; 75; 95; 103) to be reset from time to 15 time.
- 2. The apparatus of claim 1, wherein the gain of the amplifier (17; 77) is adjustable by varying the effective capacitance of the capacitors (C2; C2A, C2B to C2n).
 - 3. The apparatus of claim 2, wherein a branch that bridges the second capacitor is provided, said branch comprising a capacitor (C2B, C2n) in series with a switch (sb, sn), whereby the effective capacitance can be varied by opening or closing the switch (sb, sn).

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- 4. The apparatus of claim 2 or 3, comprising an analog-to-digital converter (80) connectable to the output (73) for determining the voltage level at the output (73), and a controller (78; 96) for receiving digital information from to the analog-to-digital converter (80), said digital information representing the voltage level, said controller (78; 96) providing a signal to adjust the effective capacitance.
 - 5. The apparatus of claim 1, 2, or 3, comprising a digital-to-analog converter (79) serving as reference voltage supply, said digital-to-analog converter (79) preferably receiving a digital signal from a controller (78; 96).
 - 6. The apparatus of claim 1, 2, or 3, comprising a bias current source (21; 93) with a network having a plurality of transistors (P1, P2, P3), resistors (R1, R2), and a reference current source (22).
- 7. The apparatus of claim 6, wherein one of the transistors is a cascode transistor (P3) which is arranged with respect to one of the other transistors (P2) so as to absorb any voltage beyond a supply voltage (Vsupply), if the input signal s(t) at falls below 0V.
 - 8. The apparatus according to one of the preceding claims, further comprising ESD protection means (92) being adapted to handle negative voltage swings at the signal input (91).
- 25 9. The apparatus of claim 8, wherein the ESD protection means (92) comprise a first diode (DP2), a second diode (DP1), and a third diode (DCL1), said first diode (DP2) being situated between the signal input (91) and a supply node (101), said second diode (DP1) being situated between the supply node (101) and a substrate (102), and said third diode (DCL1) being situated between the supply node (101) and the substrate (102).